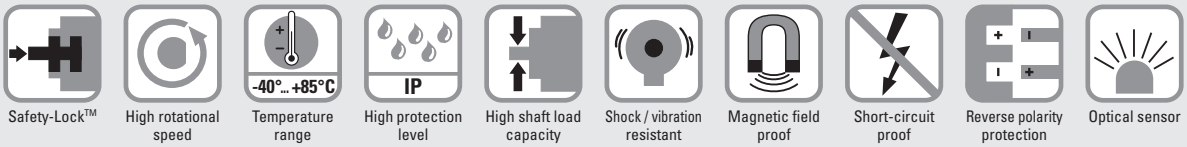
Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

Due to their sturdy bearing construction in Safety-Lock™ Design, the Sendix 5000 and 5020 offer high resistance against vibration and installation errors.

The rugged housing, high protection level of up to IP67, as well as the wide temperature range of -40 °C up to +85 °C, make this product range the perfect encoder for all applications.



Safety-Lock™ | High rotational speed | Temperature range | High protection level | High shaft load capacity | Shock / vibration resistant | Magnetic field proof | Short-circuit proof | Reverse polarity protection | Optical sensor

Robust performance

- Increased resistance against shock, vibrations and tolerance of installation errors, elimination of machine downtime and repairs thanks to sturdy bearing construction in "Safety-Lock™ Design".
- Ensures highest safety against field breakdowns and is thus suitable also for outside use thanks to its resistant die-cast housing and protection up to IP67.
- Undetachable clamping ring on hollow shaft encoders.
- Wide temperature range, -40 °C ... +85 °C.

Many variants

- Suitable connection variant for every specific case: cable connection with different standard lengths, M12 (5- or 8-pin), M23 (12-pin), MIL (7- or 10-pin) and Sub-D connector.
  In addition: Variants with connector fitted in the cable – for error-free electrical connection to your control.
- Reliable mounting in a wide variety of installation situations: comprehensive and proven fixing possibilities.
- Compatible with all US and European standards.
- Wide range of standard pulse ranges up to max. 5000 pulses per revolution.

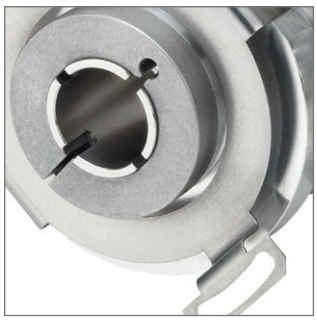
Technology in detail

Robust Safety-Lock™ bearing structure

Cables with fitted connector

Undetachable clamping ring

Slotted clamping ring + slotted shaft



Tangential cable outlet

Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

Order code Shaft version

8.5000	.	X	X	X	X	.	XXXX
Type		ⓐ	ⓑ	ⓒ	ⓓ		ⓔ

ⓐ *Flange*

5	= synchro flange, IP66/IP67	ø 50.8 mm [2“]
6	= synchro flange, IP65	ø 50.8 mm [2“]
7	= clamping flange, IP66/IP67	ø 58 mm [2.28“]
8	= clamping flange, IP65	ø 58 mm [2.28“]
A	= synchro flange, IP66/IP67	ø 58 mm [2.28“] [1]
B	= synchro flange, IP65	ø 58 mm [2.28“] [1]
C	= square flange, IP66/IP67	□ 63.5 mm [2.5“]
D	= square flange, IP65	□ 63.5 mm [2.5“]
G	= Euro flange, IP66/IP67	ø 115 mm [4.53“] [2]
1	= servo flange, IP66/IP67	ø 50.8 mm [2“] [3]
2	= servo flange, IP65	ø 50.8 mm [2“] [3]
3	= square flange, IP66/IP67	□ 52.3 mm [2.06“] [3]
4	= square flange, IP65	□ 52.3 mm [2.06“] [3]
E	= servo flange, IP66/IP67	ø 63.5 mm [2.5“] [3]
F	= servo flange, IP65	ø 63.5 mm [2.5“] [3]

ⓑ *Shaft (ø x L), with flat*

1	= ø 6 x 10 mm [0.24 x 0.39“]
2	= ø 1/4 x 5/8“ (6.35 x 15.875 mm)
6	= ø 8 x 15 mm [0.32 x 0.59“]
3	= ø 10 x 20 mm [0.39 x 0.79“]
4	= ø 3/8 x 5/8“(9.5 x 15.875 mm)
B	= ø 11 x 33 mm [0.43 x 1.30“], with feather key shaft slot [4]
5	= ø 12 x 20 mm [0.47 x 0.79“]
7	= ø 1/4 x 7/8“ [3]
8	= ø 3/8 x 7/8“ [3]

ⓒ *Output circuit (with inverted signal) / supply voltage*

4	= RS422 / 5 V DC
1	= RS422 / 5 ... 30 V DC
2	= push-pull (7272 compatible) / 5 ... 30 V DC
5	= push-pull / 10 ... 30 V DC
3	= open collector / 5 ... 30 V DC [3]
8	= push-pull (7272 compatible), without capacitor / 5 ... 30 V DC [1] [3] [6]

ⓓ *Type of connection – cable*

1	= axial cable, 1 m [3.28‘] PVC
A	= axial cable, special length PVC *)
2	= radial cable, 1 m [3.28‘] PVC
B	= radial cable, special length PVC *)

Type of connection – connector

P	= axial M12 connector, 5-pin [5]
R	= radial M12 connector, 5-pin [5]
3	= axial M12 connector, 8-pin
4	= radial M12 connector, 8-pin
7	= axial M23 connector, 12-pin
8	= radial M23 connector, 12-pin
Y	= radial MIL connector, 10-pin
W	= radial MIL connector, 7-pin [5]
9	= radial MIL connector, 6-pin [3] [5]

Type of connection – connector with cable

L	= radial cable with M12 connector, 8-pin, special length PVC *)
M	= radial cable with M23 connector, 12-pin, special length PVC *)
N	= radial cable with Sub-D connector, 9-pin, special length PVC *)

*) Available special lengths (connection types A, B, L, M, N):
0.3, 0.5, 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20 m [0.98, 1.64, 3.28, 6.56, 9.84, 13.12, 16.40, 19.69, 26.25, 32.80, 39.37, 49.21, 65.62‘]
order code expansion .XXXX = length in dm
ex.: 8.5000.814A.1024.0030 (for cable length 3 m)

ⓔ *Pulse rate*
1, 2, 4, 5, 10, 12, 14, 20, 25, 28, 30, 32, 36, 50, 60, 64, 80, 100, 120, 125, 150, 180, 200, 240, 250, 256, 300, 342, 360, 375, 400, 500, 512, 600, 625, 720, 800, 900, 1000, 1024, 1200, 1250, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000
(e.g. 100 pulses => 0100)

Optional on request
- other pulse rates
- Ex 2/22 only for variants with IP66/IP67 and cable connection ⓓ = 1, 2, A, B [7]
- surface protection salt spray

Salt spray tested as standard type
(deliverable as from 1 unit)
8.5000.73X4.XXXX-C

2) Only in conjunction with shaft type B.
3) US version.
4) Only in conjunction with flange type G.
5) Without inverted signal.
6) Attention: no CE types!
7) Cable material PUR.

Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

Order code Hollow shaft

8.5020 . X X X X . XXXX
Type — a b c d — e

a *Flange*
1 = with spring element, long, IP66/IP67
2 = with spring element, long, IP65
3 = with torque stop, long, IP66/IP67
4 = with torque stop, long, IP65
7 = with stator coupling, IP66/IP67 ø 65 mm [2.56“]
8 = with stator coupling, IP65 ø 65 mm [2.56“]
C = with stator coupling, IP66/IP67 ø 63 mm [2.48“]
D = with stator coupling, IP65 ø 63 mm [2.48“]

5 = with stator coupling, IP66/IP67 ø 57.2 mm [2.25“] [1]
6 = with stator coupling, IP65 ø 57.2 mm [2.25“] [1]

b *Through hollow shaft*
1 = ø 6 mm [0.24“]
2 = ø 1/4“
9 = ø 8 mm [0.32“]
4 = ø 3/8“
3 = ø 10 mm [0.39“]
5 = ø 12 mm [0.47“]
6 = ø 1/2“
A = ø 14 mm [0.55“]
8 = ø 15 mm [0.59“]
7 = ø 5/8“

c *Output circuit (with inverted signal) / supply voltage*
4 = RS422 / 5 V DC
1 = RS422 / 5 ... 30 V DC
2 = push-pull (7272 compatible) / 5 ... 30 V DC
5 = push-pull / 10 ... 30 V DC

3 = open collector / 5 ... 30 V DC [1]
8 = push-pull (7272 compatible), without capacitor / 5 ... 30 V DC [1] [2]

d *Type of connection – cable*
1 = radial cable, 1 m [3.28‘] PVC
A = radial cable, special length PVC *)
E = tangential cable, 1 m [3.28‘] PVC
F = tangential cable, special length PVC *)

Type of connection – connector
R = radial M12 connector, 5-pin [3]
2 = radial M12 connector, 8-pin
4 = radial M23 connector, 12-pin
6 = radial MIL connector, 7-pin
7 = radial MIL connector, 10-pin

Type of connection – connector with cable
H = tangential cable, 0.3 m [0.98‘] PVC, incl. M12 connector, 8-pin for central fastening
L = tangential cable with M12 connector, 8-pin, special length PVC *)
M = tangential cable with M23 connector, 12-pin, special length PVC *)
N = tangential cable with Sub-D connector, 9-pin, special length PVC *)

*) Available special lengths (connection types A, F, L, M, N):
0.3, 0.5, 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20 m [0.98, 1.64, 3.28, 6.56, 9.84, 13.12, 16.40, 19.69, 26.25, 32.80, 39.37, 49.21, 65.62‘]
order code expansion .XXXX = length in dm
ex.: 8.5020.234A.1024.0030 (for cable length 3 m)

e *Pulse rate*
1, 2, 4, 5, 10, 12, 14, 20, 25, 28, 30, 32, 36, 50, 60, 64, 80, 100, 120, 125, 150, 180, 200, 240, 250, 256, 300, 342, 360, 375, 400, 500, 512, 600, 625, 720, 800, 900, 1000, 1024, 1200, 1250, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000
(e.g. 100 pulses => 0100)

Optional on request
- other pulse rates
- Ex 2/22 only for variants with IP66/IP67 and cable connection **d** = 1, A [4]
- surface protection salt spray

Salt spray tested as standard type
(deliverable as from 1 unit)
8.5020.18X2.XXXX-C
8.5020.1AX2.XXXX-C

1) US version.
2) Attention: no CE types!
3) Without inverted signal.
4) Cable material PUR.

Standard optical	Sendix 5000 / 5020 (shaft / hollow shaft)	Push-pull / RS422 / Open collector

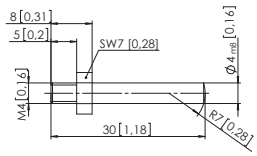
Mounting accessory for shaft encoders

		Order no.
Coupling	bellows coupling ø 19 mm [0.75“] for shaft 6 mm [0.24“]	**8.0000.1102.0606**
	bellows coupling ø 19 mm [0.75“] for shaft 10 mm [0.39“]	**8.0000.1102.1010**

Mounting accessory for hollow shaft encoders

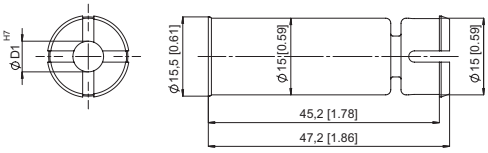
Dimensions in mm [inch]

		Order no.
Torque pin, ø 4 mm for flange with spring element (flange type 1 + 2)	with fixing thread	**8.0010.4700.0000**



Isolation / adapter inserts for hollow shaft encoders order code 8.5020.X8XX.XXXX

Thermal and electrical isolation of the encoders (Temperature range -40 °C ... +115 °C [-40 °F ... +239 °F])
Isolation inserts prevent currents from passing through the encoder bearings. These currents can occur when using inverter controlled three-phase or AC vector motors and considerably shorten the service life of the encoder bearings. In addition the encoder is thermally isolated as the plastic does not transfer the heat to the encoder.



D1	Isolation insert
6 mm	**8.0010.4021.0000**
8 mm	**8.0010.4020.0000**
10 mm	**8.0010.4023.0000**
12 mm	**8.0010.4025.0000**
1/4“	**8.0010.4022.0000**
3/8“	**8.0010.4024.0000**
1/2“	**8.0010.4026.0000**

Cables and connectors

		Order no.
Preassembled cables	M12 female connector with coupling nut, 8-pin, A coded, straight single ended 2 m [6.56‘] PVC cable	**05.00.6041.8211.002M**
	M23 female connector with coupling nut, 12-pin, cw single ended 2 m [6.56‘] PVC cable	**8.0000.6901.0002**
Connectors	M12 female connector with coupling nut, 8-pin, A coded, straight (metal)	**05.CMB 8181-0**
	M23 female connector with coupling nut, 12-pin, cw	**8.0000.5012.0000**
	MIL female connector with coupling nut, 10-pin	**8.0000.5062.0000**

Further Kübler accessories can be found at: kuebler.com/accessories
Further Kübler cables and connectors can be found at: kuebler.com/connection-technology

Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

Technical data

Mechanical characteristics

Maximum speed	IP65	12000 min^{-1} 6000 min^{-1} (continuous)
	IP66/IP67	6000 min^{-1} 3000 min^{-1} (continuous)
Mass moment of inertia		
	shaft version	approx. 1.8 x 10^{-6} kgm^2
	hollow shaft version	approx. 6 x 10^{-6} kgm^2
Starting torque at 20 °C [68 °F]	IP65	< 0.01 Nm
	IP66/IP67	< 0.05 Nm
Shaft load capacity	radial	100 N
	axial	50 N
Weight		approx. 0.4 kg [14.11 oz]
Protection acc. to EN 60529		
	without shaft seal	IP65
	with shaft seal	IP66/IP67
Working temperature range		-40 °C [1] ... +85 °C [-40 °F [1] ... +185 °F]
Material	shaft	stainless steel
Shock resistance acc. to EN 60068-2-27		3000 m/s^2, 6 ms [2]
Vibration resistance acc. to EN 60068-2-6		300 m/s^2, 10 ... 2000 Hz [3]

Approvals

UL compliant in accordance with	File no. E224618
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
ATEX Directive	2014/34/EU (for Ex 2/22 variants)

Electrical characteristics

Output circuit	**RS422** (TTL compatible)	**RS422** (TTL compatible)	**Push-pull**	**Push-pull** (HTL/TTL universal, 7272 compatible)	**Push-pull** (7272 compatible, without capacitor)	**Open collector** (7273)
Order code	**1**	**4**	**5, 7**	**2**	**8**	**3**
Supply voltage	5 ... 30 V DC	5 V DC (±5 %)	10 ... 30 V DC	5 ... 30 V DC	5 ... 30 V DC	5 ... 30 V DC
Power consumption (no load)	typ. 40 mA max. 90 mA	typ. 40 mA max. 90 mA	typ. 50 mA max. 100 mA	typ. 50 mA max. 100 mA	typ. 50 mA max. 100 mA	100 mA
Permissible load / channel	max. +/- 20 mA	max. +/- 20 mA	max. +/- 20 mA	max. +/- 20 mA	max. +/- 20 mA	20 mA sink at 30 V DC
Pulse frequency	max. 300 kHz	max. 300 kHz	max. 300 kHz	max. 300 kHz [4]	max. 300 kHz	max. 300 kHz
Signal level HIGH	min. 2.5 V	min. 2.5 V	min +V - 1.0 V	min. +V - 2.0 V	min. +V - 2.0 V	
LOW	max. 0.5 V	max. 0.5 V	max. 0.5 V	max. 0.5 V	max. 0.5 V	
Rising edge time t_r	max. 200 ns	max. 200 ns	max. 1 µs	max. 1 µs	max. 1 µs	
Falling edge time t_f	max. 200 ns	max. 200 ns	max. 1 µs	max. 1 µs	max. 1 µs	
Short circuit proof outputs [5]	yes [6]	yes [6]	yes	yes	yes [6]	yes
Reverse polarity protection of the supply voltage	yes	no	yes	no	no	no

1) With connector: -40 °C [-40 °F], cable fixed: -30 °C [-22 °F], cable moved: -20 °C [-4 °F].
2) For MIL connectors: 2500 m/ s^2
3) For MIL connectors: 100 m/ s^2
4) Max. recommended cable length 30 m [98.43'].
5) If supply voltage correctly applied.
6) Only one channel allowed to be shorted-out:
at +V= 5 V DC, short-circuit to channel, 0 V, or +V is permitted.
at +V= 5 ... 30 V DC, short-circuit to channel or 0 V is permitted.

Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

Terminal assignment

Output circuit	Type of connection	Cable (isolate unused cores individually before initial start-up)											
1, 2, 3, 4, 5, 8	5000: 1, 2, A, B	Signal:	0 V	+V	0 Vsens	+Vsens	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	5020: 1, A, E, F	Core color:	WH	BN	GY PK	RD BU	GN	YE	GY	PK	BU	RD	shield

Output circuit	Type of connection	M12 connector, 5-pin						
1, 2, 3, 4, 5, 8	5000: P, R	Signal:	0 V	+V	A	B	0	⏚
	5020: R	Pin:	1	2	3	4	5	PH [1]

Output circuit	Type of connection	M12 connector, 8-pin								
1, 2, 3, 4, 5, 8	5000: 3, 4, L	Signal:	0 V	+V	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	5020: 2, H [2], L	Pin:	1	2	3	4	5	6	7	8	PH [1]

Output circuit	Type of connection	M23 connector, 12-pin											
1, 2, 3, 4, 5, 8	5000: 7, 8, M	Signal:	0 V	+V	0 Vsens	+Vsens	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	5020: 4, M	Pin:	10	12	11	2	5	6	8	1	3	4	PH [1]

Output circuit	Type of connection	MIL connector, 10-pin										
1, 2, 3, 4, 5, 8	5000: Y	Signal:	0 V	+V	+Vsens	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	5020: 7	Pin:	F	D	E	A	G	B	H	C	I	J

Output circuit	Type of connection	MIL connector, 7-pin							
1, 3, 4, 5, 8	5000: W	Signal:	0 V	+V	+Vsens	A	B	0	⏚
	5020: 6	Pin:	F	D	E	A	B	C	G

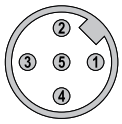
Output circuit	Type of connection	MIL connector, 6-pin						
1, 3, 4, 5, 8	5000: 9	Signal:	0 V	+V	A	B	0	⏚
		Pin:	A	B	E	D	C	

Output circuit	Type of connection	Sub-D connector, 9-pin									
1, 2, 3, 4, 5, 8	5000: N	Signal:	0 V	+V	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	5020: N	Pin:	9	5	1	6	2	7	3	8	PH [1]

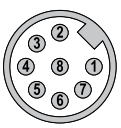
+V: Supply voltage encoder +V DC
0 V: Supply voltage encoder ground GND (0 V)
0 V_{sens} / +V_{sens}: Using the sensor outputs of the encoder, the voltage present can be measured and if necessary increased accordingly.

A, $\overline{A}$: Incremental output channel A
B, $\overline{B}$: Incremental output channel B
0, $\overline{0}$: Reference signal
PH ⏚: Plug connector housing (shield)

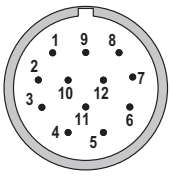
Top view of mating side, male contact base



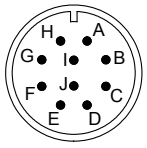
M12 connector, 5-pin



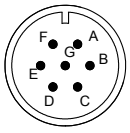
M12 connector, 8-pin



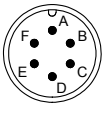
M23 connector, 12-pin



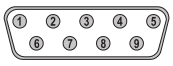
MIL connector, 10-pin



MIL connector, 7-pin



MIL connector, 6-pin



Sub-D connector, 9-pin

1) PH = shield is attached to connector housing.
2) With type of connection H shield is not attached to connector housing.

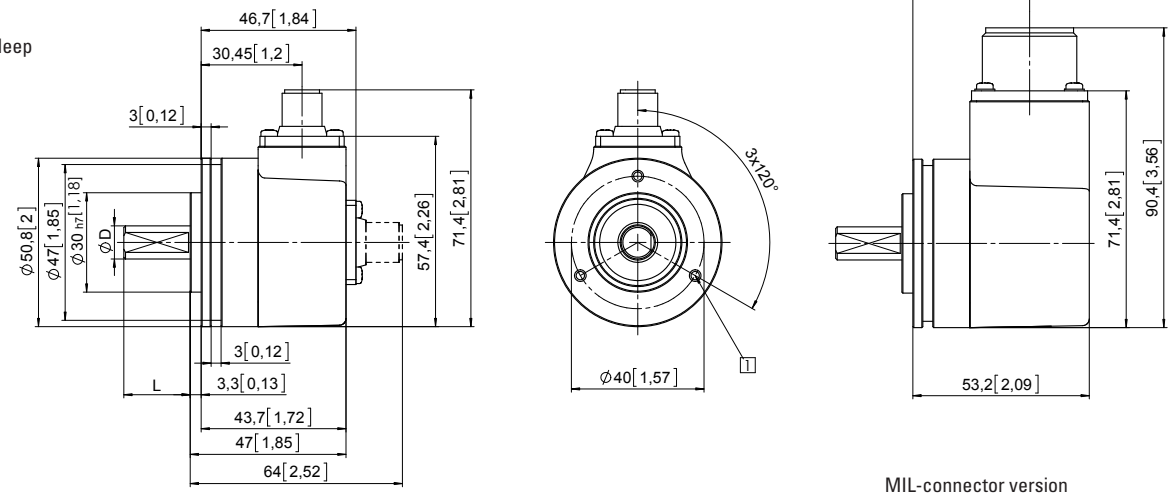
Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

Dimensions shaft version

Dimensions in mm [inch]

Synchro flange, ø 50.8 [2]
Flange type 5 and 6

1 3 x M3, 6 [0.24] deep

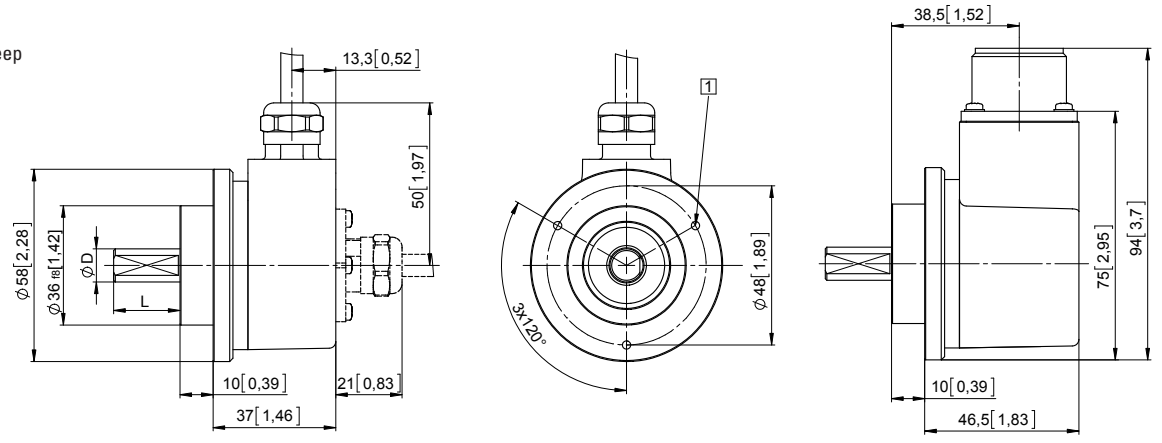


MIL-connector version

D	Fit	L
6 [0.24]	h7	10 [0.39]
8 [0.32]	h7	15 [0.59]
10 [0.39]	h7	20 [0.79]
12 [0.47]	h7	20 [0.79]
1/4"	h7	5/8"
3/8"	h7	5/8"
1/4"	h8	7/8"
3/8"	h8	7/8"

Clamping flange, ø 58 [2.28]
Flange type 7 and 8

1 3 x M3, 6 [0.24] deep



MIL-connector version

D	Fit	L
6 [0.24]	h7	10 [0.39]
8 [0.32]	h7	15 [0.59]
10 [0.39]	h7	20 [0.79]
12 [0.47]	h7	20 [0.79]
1/4"	h7	5/8"
3/8"	h7	5/8"
1/4"	h8	7/8"
3/8"	h8	7/8"

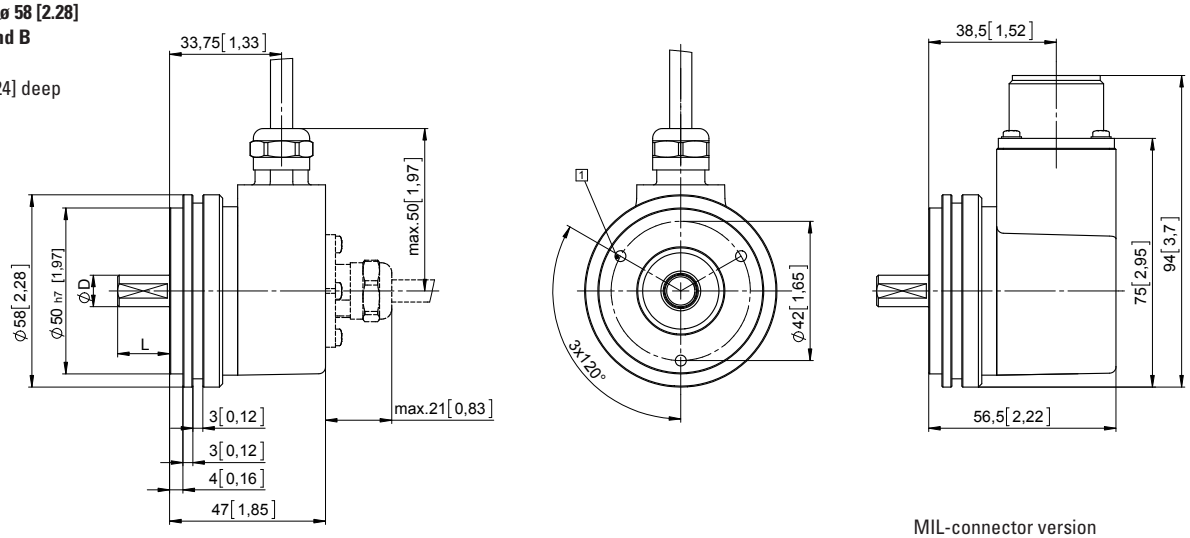
Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

Dimensions shaft version

Dimensions in mm [inch]

Synchro flange, ø 58 [2.28]
Flange type A and B

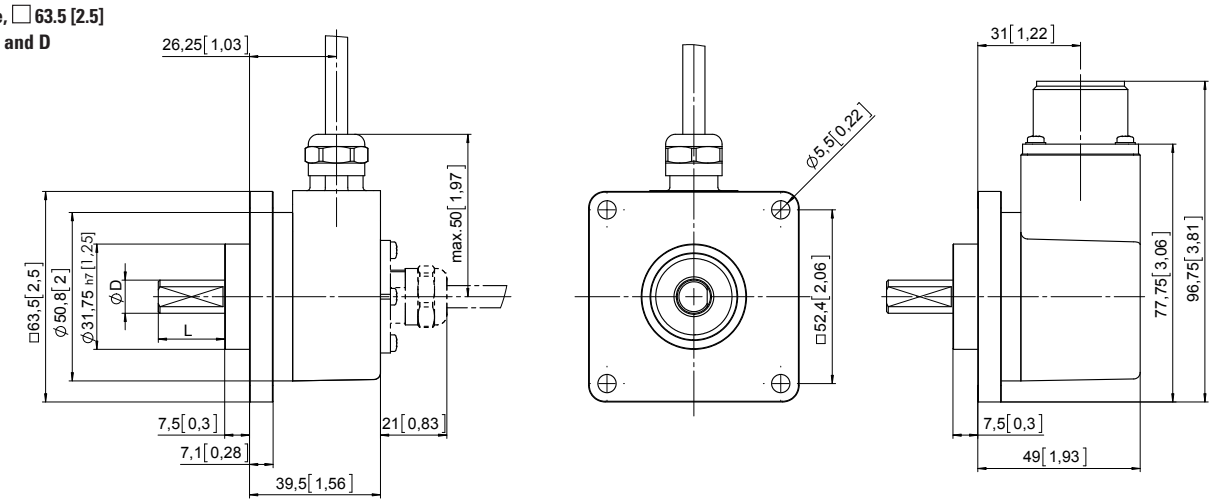
1 3 x M4, 6 [0.24] deep



MIL-connector version

D	Fit	L
6 [0.24]	h7	10 [0.39]
8 [0.32]	h7	15 [0.59]
10 [0.39]	h7	20 [0.79]
12 [0.47]	h7	20 [0.79]
1/4“	h7	5/8“
3/8“	h7	5/8“
1/4“	h8	7/8“
3/8“	h8	7/8“

Square flange, □ 63.5 [2.5]
Flange type C and D



MIL-connector version

D	Fit	L
6 [0.24]	h7	10 [0.39]
8 [0.32]	h7	15 [0.59]
10 [0.39]	h7	20 [0.79]
12 [0.47]	h7	20 [0.79]
1/4“	h7	5/8“
3/8“	h7	5/8“
1/4“	h8	7/8“
3/8“	h8	7/8“

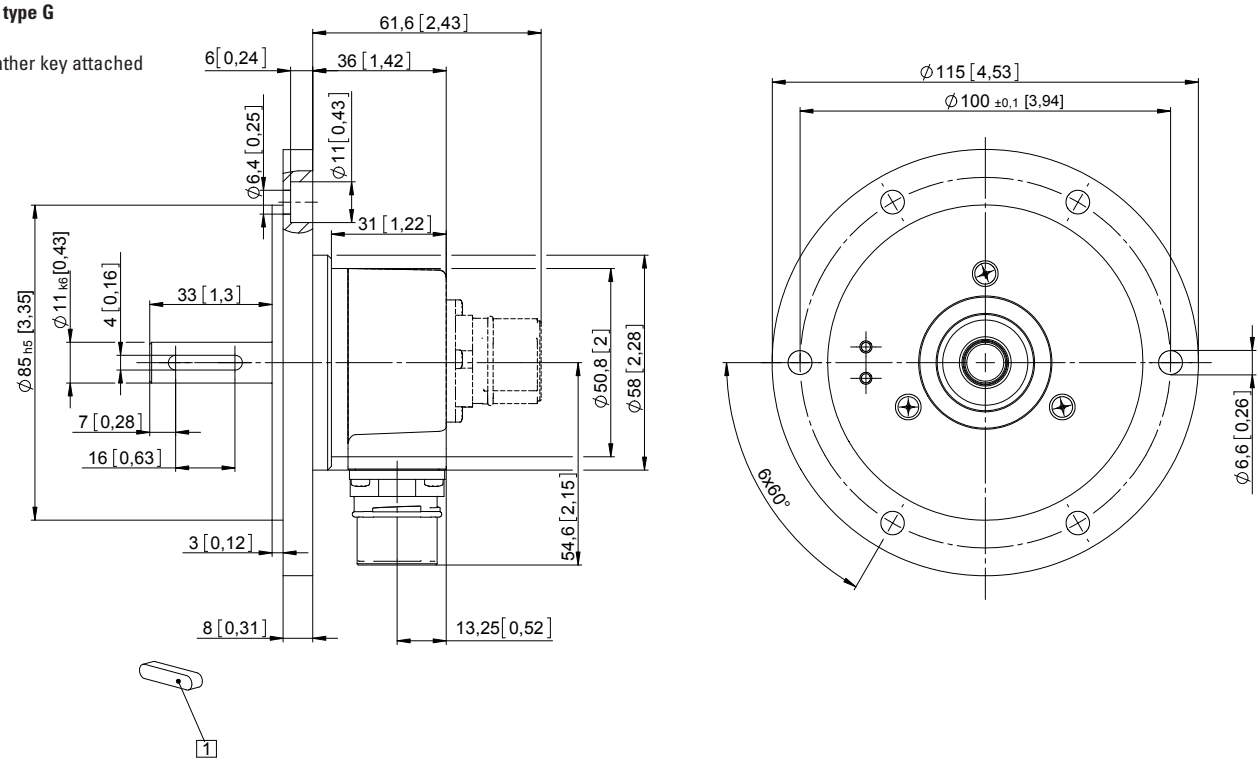
Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

Dimensions shaft version

Dimensions in mm [inch]

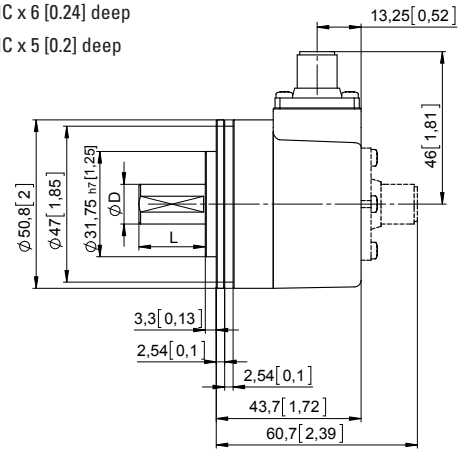
Euro flange, ø 115 [4.53]
Flange type G

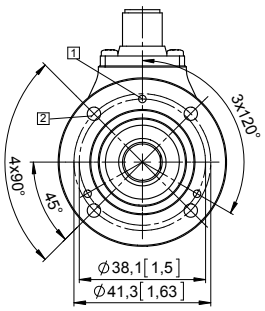
1 Feather key attached

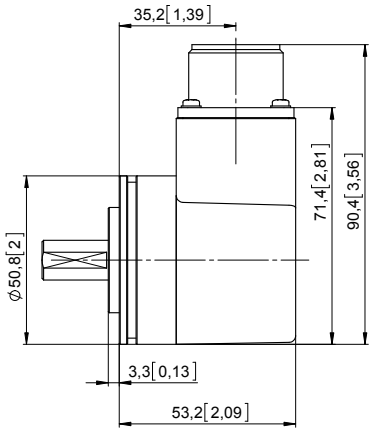


Servo flange, ø 50.8 [2]
Flange type 1 and 2

1 4-40 UNC x 6 [0.24] deep
2 6-32 UNC x 5 [0.2] deep







MIL-connector version

D	Fit	L
6 [0.24]	h7	10 [0.39]
8 [0.32]	h7	15 [0.59]
10 [0.39]	h7	20 [0.79]
12 [0.47]	h7	20 [0.79]
1/4"	h7	5/8"
3/8"	h7	5/8"
1/4"	h8	7/8"
3/8"	h8	7/8"

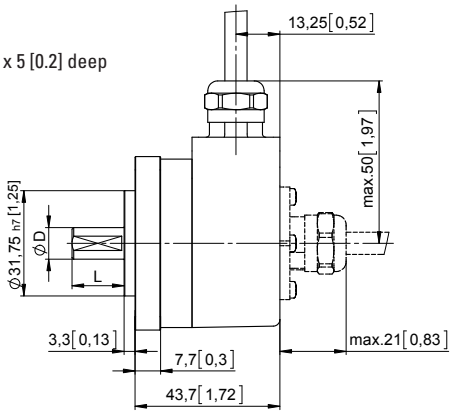
Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

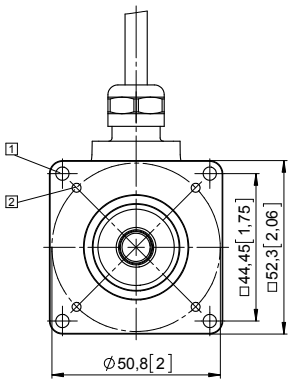
Dimensions shaft version

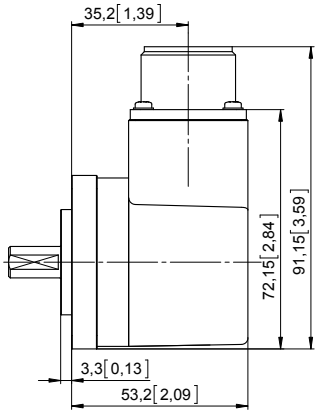
Dimensions in mm [inch]

Square flange, □ 52.3 [2.06]
Flange type 3 and 4

1 ø 4 [0.16]
2 6-32 UNC x 5 [0.2] deep





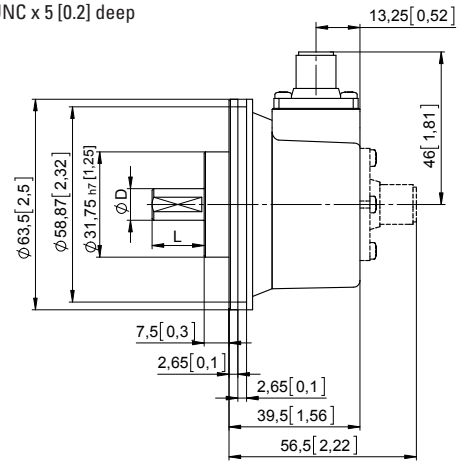


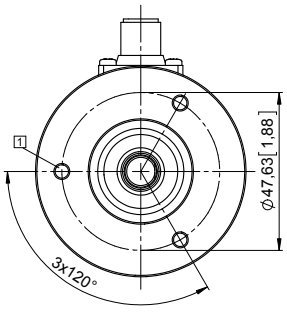
MIL-connector version

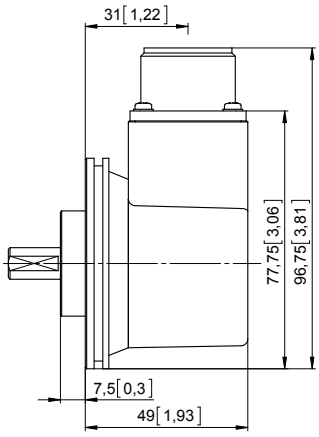
D	Fit	L
6 [0.24]	h7	10 [0.39]
8 [0.32]	h7	15 [0.59]
10 [0.39]	h7	20 [0.79]
12 [0.47]	h7	20 [0.79]
1/4“	h7	5/8“
3/8“	h7	5/8“
1/4“	h8	7/8“
3/8“	h8	7/8“

Servo flange, ø 63.5 [2.5]
Flange type E and F

1 6-32 UNC x 5 [0.2] deep







MIL-connector version

D	Fit	L
6 [0.24]	h7	10 [0.39]
8 [0.32]	h7	15 [0.59]
10 [0.39]	h7	20 [0.79]
12 [0.47]	h7	20 [0.79]
1/4“	h7	5/8“
3/8“	h7	5/8“
1/4“	h8	7/8“
3/8“	h8	7/8“

Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

Dimensions hollow shaft version

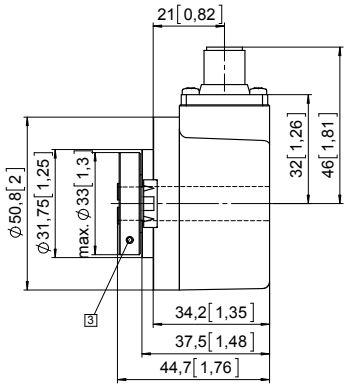
Dimensions in mm [inch]

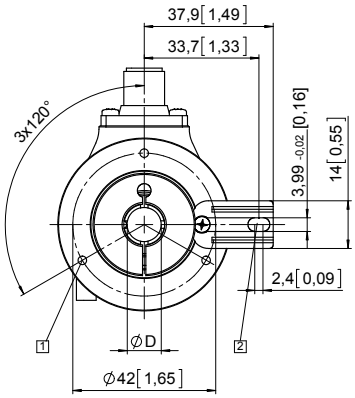
Flange with spring element, long
Flange type 1 and 2

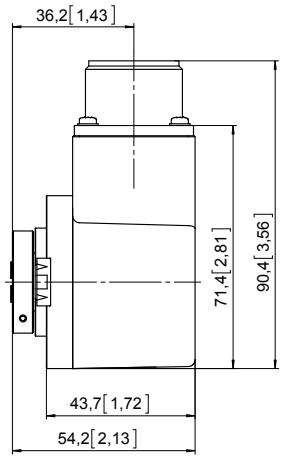
1 3 x M3, 6 [0.24] deep

2 Slot spring element, recommendation: torque pin DIN 7, ø 4 [0.16]

3 Recommended torque for the clamping ring 0.6 Nm





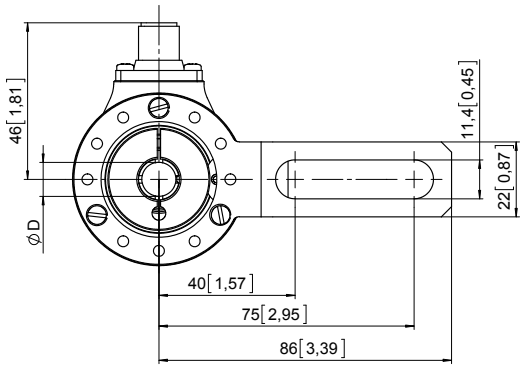


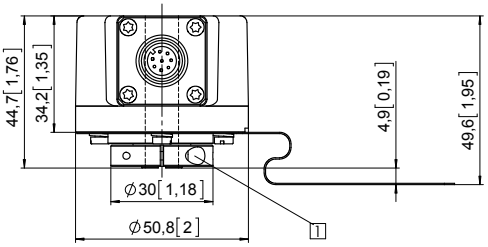
MIL-connector version

D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4"	H7
3/8"	H7
1/2"	H7
5/8"	H7
Recommended fit for shaft on customer side is g6.	

Flange with torque stop, long
Flange type 3 and 4

1 Recommended torque for the clamping ring 0.6 Nm





D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4"	H7
3/8"	H7
1/2"	H7
5/8"	H7
Recommended fit for shaft on customer side is g6.	

Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

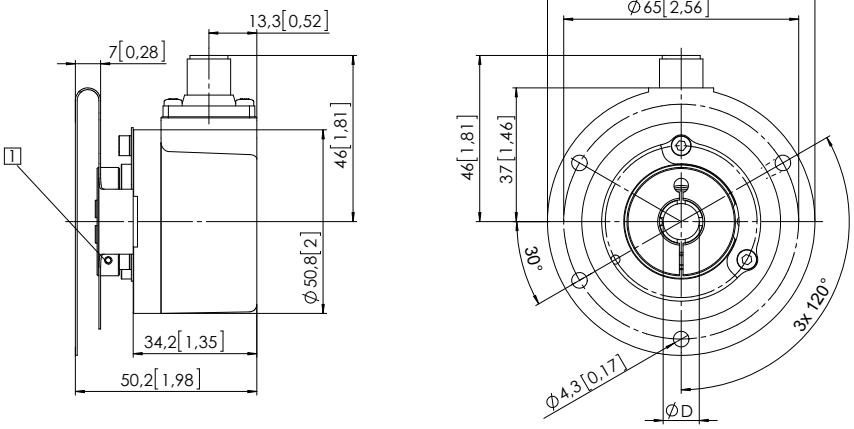
Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with stator coupling, ø 65 [2.56]
Flange type 7 and 8

1 Recommended torque for the clamping ring 0.6 Nm

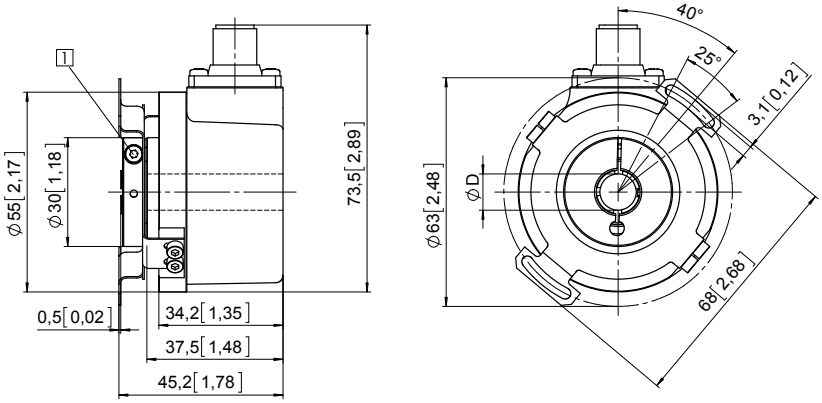
D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4“	H7
3/8“	H7
1/2“	H7
5/8“	H7
Recommended fit for shaft on customer side is g6.	



Flange with stator coupling, ø 63 [2.48]
Flange type C and D

1 Recommended torque for the clamping ring 0.6 Nm

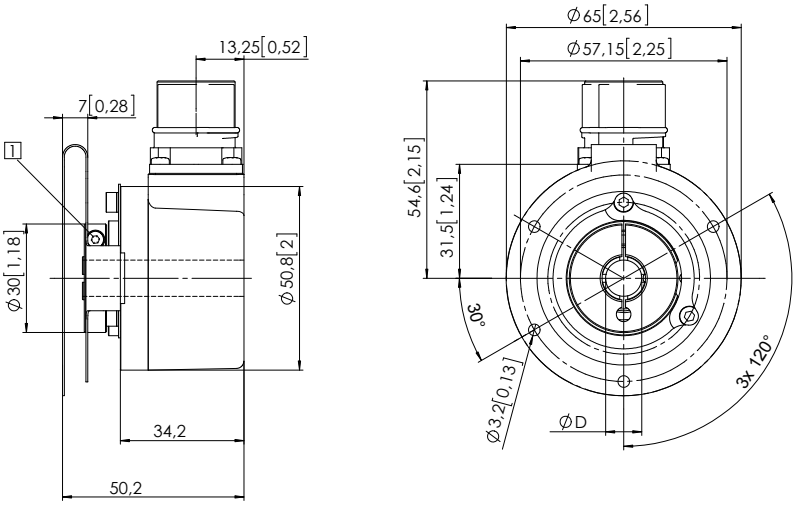
D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4“	H7
3/8“	H7
1/2“	H7
5/8“	H7
Recommended fit for shaft on customer side is g6.	



Flange with stator coupling, ø 57.2 [2.25]
Flange type 5 and 6

1 Recommended torque for the clamping ring 0.6 Nm

D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4“	H7
3/8“	H7
1/2“	H7
5/8“	H7
Recommended fit for shaft on customer side is g6.	



Standard optical | **Sendix 5000 / 5020 (shaft / hollow shaft)** | **Push-pull / RS422 / Open collector**

Dimensions hollow shaft version

Dimensions in mm [inch]

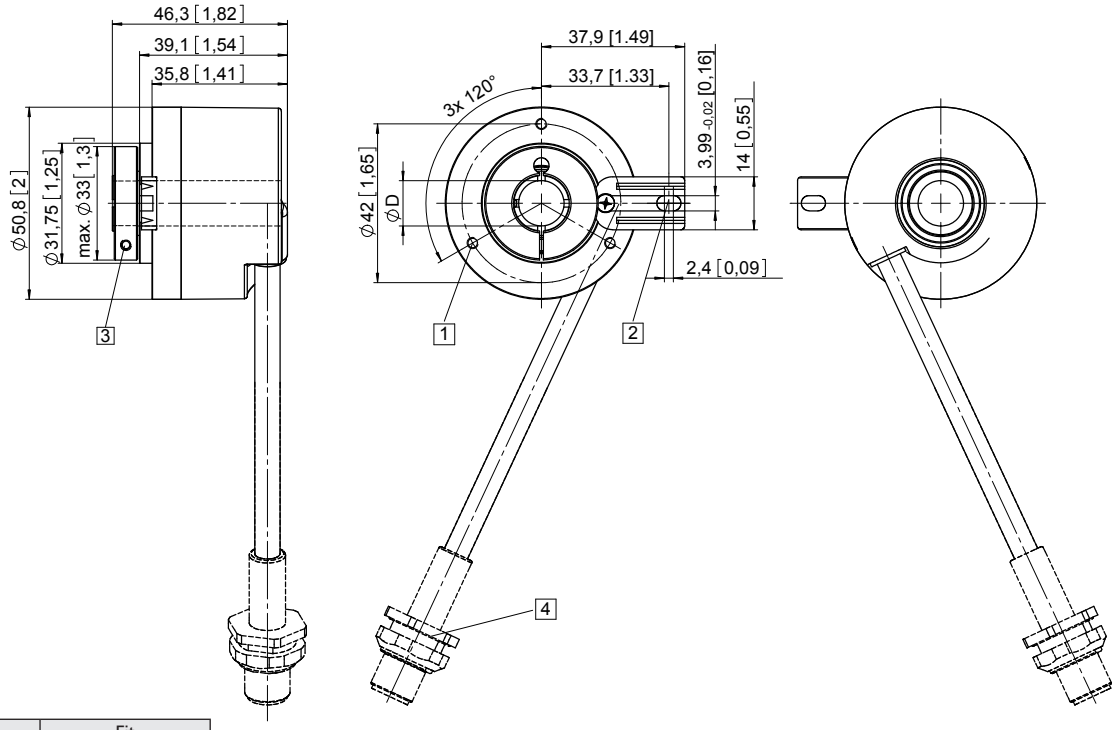
Flange with spring element, long and tangential cable outlet
Type of connection E, F and H

1 3 x M3, 6 [0.24] deep

2 Slot spring element, recommendation: torque pin DIN 7, ø 4 [0.16]

3 Recommended torque for the clamping ring 0.6 Nm

4 Shield is not applied on connector



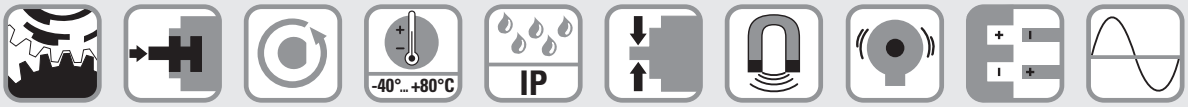
D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4“	H7
3/8“	H7
1/2“	H7
5/8“	H7
Recommended fit for shaft on customer side is g6.	

Standard
mechanical multiturn, optical | **Sendix 5868 / 5888 (shaft / hollow shaft)** | **PROFIBUS DP**

The multiturn encoders Sendix 5868 and 5888 with Profibus interface and optical sensor technology are the ideal solution for all Profibus applications.

With a maximum resolution of 28 bits these encoders are available with blind hollow shaft up to 15 mm.

Ex 2/22 | cULus | RoHS | PROFIBUS



Mechanical drive | Safety-Lock™ | High rotational speed | Temperature range | High protection level | High shaft load capacity | Magnetic field proof | Shock / vibration resistant | Reverse polarity protection | SinCos

Reliable

- Tried-and-tested in applications with the highest demands, such as in wind energy or mobile automation.
- Absolutely reliable operation in areas with strong magnetic fields, thanks to mechanical gear with optical sensor technology.

Flexible

- Fast, simple, error-free connection using versions with M12 connector.
- Wide-ranging programming options thanks to latest encoder profile.

Order code Shaft version

8.5868	.	X	X	3	X	.	31	1	X
Type		a	b	c	d		e		f

If for each parameter of an encoder the **underlined preferred option** is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.

10 by 10

a *Flange*
1 = clamping flange, IP65 ø 58 mm [2.28“]
3 = clamping flange, IP67 ø 58 mm [2.28“]
2 = synchro flange, IP65 ø 58 mm [2.28“]
4 = synchro flange, IP67 ø 58 mm [2.28“]
5 = square flange, IP65 □ 63.5 mm [2.5“]
7 = square flange, IP67 □ 63.5 mm [2.5“]

b *Shaft (ø x L), with flat*
1 = 6 x 10 mm [0.24 x 0.39“] 1)
2 = 10 x 20 mm[0.39 x 0.79“] 2)
3 = 1/4“ x 7/8“
4 = 3/8“ x 7/8“

c *Interface / power supply*
3 = PROFIBUS DP V0 encoder profile V 1.1, 10 ... 30 V DC

d *Type of connection, removable bus terminal cover*
1 = with radial cable gland fitting
2 = with 3 x radial M12 connectors

e *Fieldbus profile*
31 = PROFIBUS DP V0 encoder profile class 2

f *Options (service)*
2 = no option
3 = SET button

Optional on request
- Ex 2/22
- surface protection salt spray tested
- seawater resistant (stainless steel V4A)

Salt spray tested / stainless steel V4A as standard types (deliverable as from 1 unit)

salt spray tested:
8.5868.3232.3112-C

V4A 1.4404
stainless steel V4A:
8.5868.3232.3112-V4A

1) Preferred type only in conjunction with flange type 2.

2) Preferred type only in conjunction with flange type 1.

Standard
mechanical multiturn, optical | **Sendix 5868 / 5888 (shaft / hollow shaft)** | **PROFIBUS DP**

Order code Hollow shaft

8.5888	.	X	X	3	X	.	31	1	X
Type		a	b	c	d		e		f

If for each parameter of an encoder the **underlined preferred option** is selected, then the delivery time will be 10 working days for a maximum of 10 pieces.
Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.

10 by 10

a *Flange*
1 = with spring element, long, IP65
2 = with spring element, long, IP67
3 = with stator coupling, IP65 ø 65 mm [2.56"]
4 = with stator coupling, IP67 ø 65 mm [2.56"]
5 = with stator coupling, IP65 ø 63 mm [2.48"]
6 = with stator coupling, IP67 ø 63 mm [2.48"]

b *Blind hollow shaft*
(insertion depth max. 30 mm [1.18"])
3 = ø 10 mm [0.39"]
4 = ø 12 mm [0.47"]
5 = ø 14 mm [0.55"]
6 = ø 15 mm [0.59"]
8 = ø 3/8"
9 = ø 1/2"

c *Interface / power supply*
3 = PROFIBUS DP V0 encoder profile V 1.1, 10 ... 30 V DC

d *Type of connection, removable bus terminal cover*
1 = with radial cable gland fitting
2 = with 3 x radial M12 connectors

e *Fieldbus profile*
31 = PROFIBUS DP V0 encoder profile class 2

f *Options (service)*
2 = no option
3 = SET button

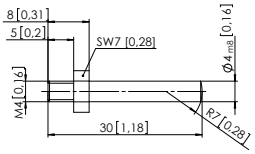
Optional on request
- Ex 2/22
- surface protection salt spray tested
- seawater resistant (stainless steel V4A)

Salt spray tested / stainless steel V4A as standard types (deliverable as from 1 unit)

salt spray tested:
8.5888.2432.3112-C
8.5888.2532.3112-C

V4A 1.4404 stainless steel V4A:
8.5888.2432.3112-V4A

Mounting accessory for shaft encoders		Order no.
Coupling	bellows coupling ø 19 mm [0.75"] for shaft 6 mm [0.24"]	**8.0000.1102.0606**
	bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]	**8.0000.1102.1010**

Mounting accessory for hollow shaft encoders	Dimensions in mm [inch]	Order no.
Cylindrical pin, long for flange with spring element (flange type 1 + 2)	with fixing thread 	**8.0010.4700.0000**

Connection technology		Order no.
Cordset, pre-assembled	M12 female connector with coupling nut for bus in , 5-pin 5 m [16.40'] PUR cable	**05.00.6011.3211.005M**
	M12 male connector with external thread for bus out, 5-pin 5 m [16.40'] PUR cable	**05.00.6011.3411.005M**
	M12 female connector with coupling nut for power supply, 4-pin 2 m [6.56'] PUR cable	**05.00.6061.6211.002M**
Connector, self-assembly (straight)	M12 female connector with coupling nut for bus in , 5-pin	**05.BMWS 8151-8.5**
	M12 male connector with external thread for bus out, 5-pin	**05.BMSWS 8151-8.5**
	M12 female connector with coupling nut for power supply, 4-pin	**05.B8141-0**

Further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.
Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology.

Absolute encoders – multiturn

Standard
mechanical multiturn, optical | **Sendix 5868 / 5888 (shaft / hollow shaft)** | **PROFIBUS DP**

Technical data

Mechanical characteristics

Maximum speed	IP65 up to 70°C [158°F]	9000 min^{-1}, 7000 min^{-1} (continuous)
	IP65 up to T_{max}	7000 min^{-1}, 4000 min^{-1} (continuous)
	IP67 up to 70°C [158°F]	8000 min^{-1}, 6000 min^{-1} (continuous)
	IP67 up to T_{max}	6000 min^{-1}, 3000 min^{-1} (continuous)
Starting torque - at 20°C [68°F]	IP65	< 0.01 Nm
	IP67	< 0.05 Nm
Mass moment of inertia	shaft version	3.0 x 10^{-6} kgm^2
	hollow shaft version	7.5 x 10^{-6} kgm^2
Load capacity of shaft	radial	80 N
	axial	40 N
Weight	with bus terminal cover	approx. 0.57 kg [10.11 oz]
	with fixed connection	approx. 0.52 kg [18.34 oz]
Protection acc. to EN 60529	housing side	IP67
	shaft side	IP65, opt. IP67
Working temperature range		-40°C ... +80°C [-40°F ... +176°F]
Materials	shaft / hollow shaft	stainless steel
	flange	aluminum
	housing	zinc die-cast
Shock resistance acc. to EN 60068-2-27		2500 m/s^2, 6 ms
Vibration resistance acc. to EN 60068-2-6		100 m/s^2, 55 ... 2000 Hz

Electrical characteristics

Power supply	10 ... 30 V DC
Power consumption (no load)	max. 120 mA
Reverse polarity protection of the power supply	yes
UL approval	file no. E224618
CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

SET button (zero or defined value, option)

Protection against accidental activation.
Button can only be operated with a ball-pen or pencil.

Diagnostic LED (yellow)

LED is ON with following errors	Sensor error (Profibus error)

Interface characteristics PROFIBUS DP

Resolution singleturn	1 ... 65536 (16 bit), scalable default: 8192 (13 bit)
Number of revolutions (multiturn)	1 ... 4096 (12 bit), scalable
Total resolution	1 ... 268.435.456 (28 bit), scalable default: 33.554.432 (25 bit)
Interface	Interface specification acc. to PROFIBUS-DP 2.0 / standard (DIN 19245 part 3) / RS485 driver galvanically isolated
Protocol	Profibus encoder profile V1.1 class1 and class 2 with manufacturer-specific add-ons
Baud rate	max. 12 Mbit/s
Device address	1 ... 127 set by rotary switches
Termination switchable	set by DIP switches

Profibus encoder profile V1.1

The PROFIBUS DP device profile describes the functionality of the communication and the user-specific component within the Profibus field bus system. For encoders, the encoder profile is definitive. Here the individual objects are defined independent of the manufacturer. Furthermore, the profiles offer space for additional manufacturer-specific functions; this means that Profibus-compliant device systems can be used now with the guarantee that they are ready for the future too.

The following parameters can be programmed

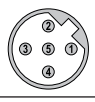
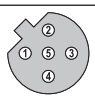
- Direction of rotation.
- Scaling (number of steps per revolution).
- Preset value.
- Diagnostics mode.

The following functionality is integrated

- Galvanic isolation of the bus stage with DC/DC converter.
- Line driver acc. to RS485 max. 12 MB.
- Address programmable via DIP switches.
- Diagnostics LED.
- Full class 1 and class 2 functionality.

Terminal assignment terminal box

Interface	Type of connection		BUS IN				BUS OUT				
3	1 (terminal box)	Signal:	B	A	0 V	+V	0 V	+V	B	A	The shield of the connection cable must be connected over a large area via the cable gland.
		Terminal:	1	2	3	4	5	6	7	8	

Interface	Type of connection	Function	3 x M12 connector						
3	2 (3 x M12 connector)	Bus in	Signal:	–	PB_A	–	PB_B	Shield	
			Pin:	1	2	3	4	5	
		Power supply	Signal:	+V	–	0 V	–		
			Pin:	1	2	3	4		
		Bus out	Signal:	BUS_VDC [1]	PB_A	BUS_GND [1]	PB_B	Shield	
			Pin:	1	2	3	4	5	

1) For supplying an external Profibus DP termination resistor.

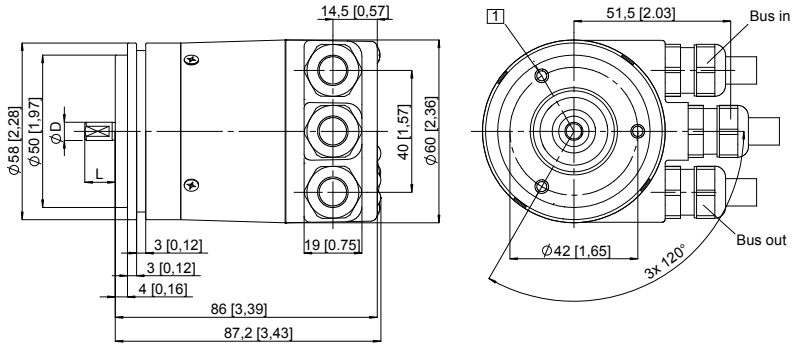
Standard
mechanical multiturn, optical | **Sendix 5868 / 5888 (shaft / hollow shaft)** | **PROFIBUS DP**

Dimensions shaft version, with removable bus terminal cover

Dimensions in mm [inch]

Synchro flange, ø 58 [2.28]
Flange type 2 and 4
(drawing with cable)

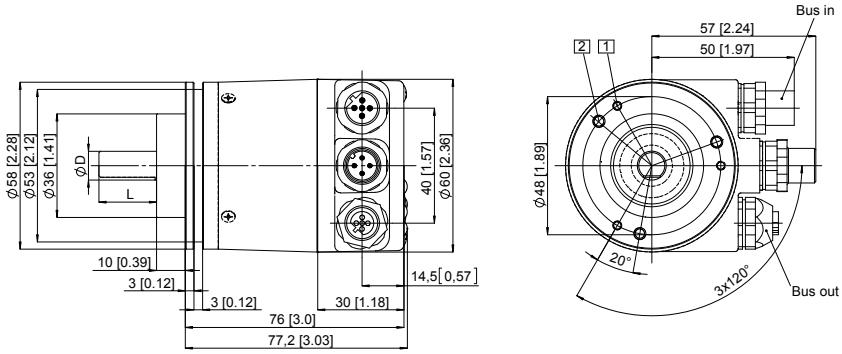
1 3 x M4, 6 [0.24] deep



D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4“	h7	7/8“
3/8“	h7	7/8“

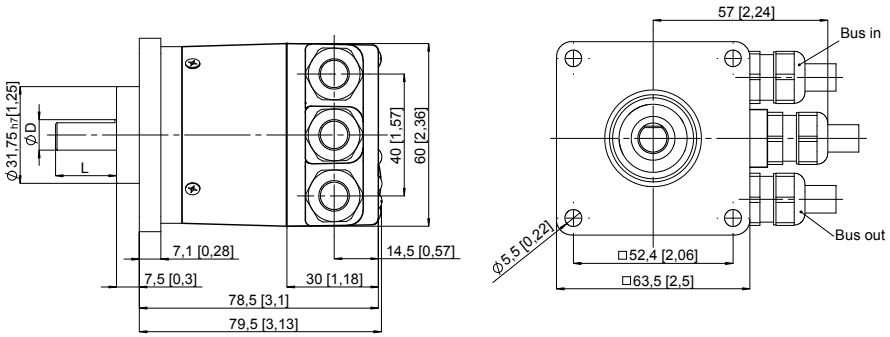
Clamping flange, ø 58 [2.28]
Flange type 1 and 3
(drawing with 3 x M12 connector)

1 3 x M3, 6 [0.24] deep
2 3 x M4, 8 [0.32] deep



D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4“	h7	7/8“
3/8“	h7	7/8“

Square flange, □63.5 [2.5]
Flange type 5 and 7
(drawing with cable)



D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4“	h7	7/8“
3/8“	h7	7/8“

Standard
mechanical multiturn, optical | **Sendix 5868 / 5888 (shaft / hollow shaft)** | **PROFIBUS DP**

Dimensions hollow shaft version (blind hollow shaft), with removable bus terminal cover

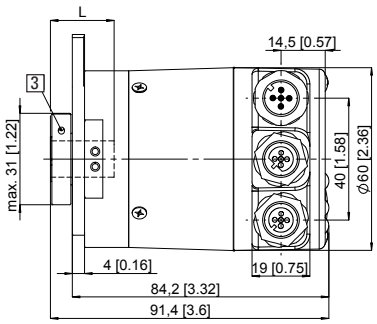
Dimensions in mm [inch]

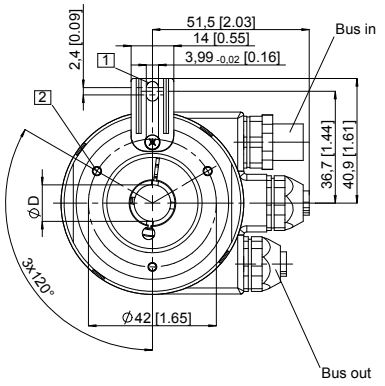
Flange with spring element, long
Flange type 1 and 2
(drawing with 3 x M12 connector)

1 Slot spring element
recommendation:
cylindrical pin DIN 7, ø 4 [0.16]

2 3 x M3, 5.5 [0.22] deep

3 Recommended torque for the
clamping ring 0.6 Nm

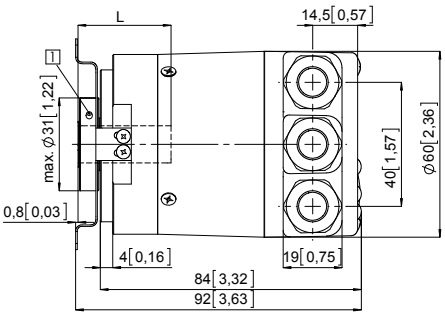


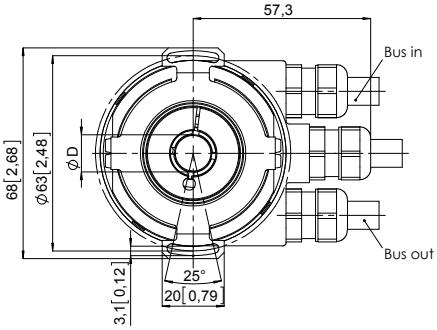


D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]
L = insertion depth max. blind hollow shaft		

Flange with stator coupling, ø 63 [2.48]
Flange type 5 and 6
Pitch circle diameter for fixing screws
63 [2.48]
(drawing with cable)

1 Recommended torque for the
clamping ring 0.6 Nm

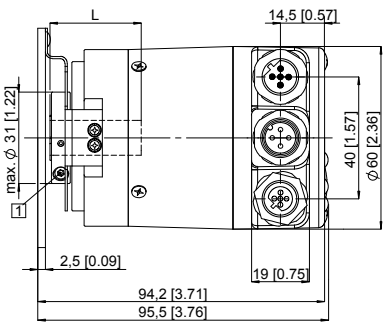


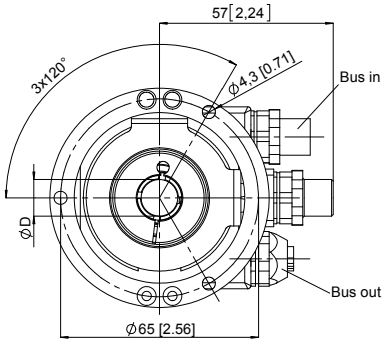


D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]
L = insertion depth max. blind hollow shaft		

Flange with stator coupling, ø 65 [2.56]
Flange type 3 and 4
Pitch circle diameter for fixing screws
65 [2.56]
(drawing with 3 x M12 connector)

1 Recommended torque for the
clamping ring 0.6 Nm





D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]
L = insertion depth max. blind hollow shaft		

Connection of motor and encoder | **Couplings** | **Bellows and spring washer couplings**

Bellows couplings provide cost-effective connection of the motor and encoder. They are also able to correct any angular errors between the drive and encoder.

Spring washer couplings are used with high speeds.

Order code Couplings

8.0000	.	1	XXX	.	XX	XX
Type			ⓐ		ⓑ	ⓒ

ⓐ *Type of coupling*
102 = Bellows-type ø 19 mm [0.75“]
202 = Bellows-type ø 15 mm [0.59“]
301 = Spring washer type, ø 30 mm [1.18“], one-part
401 = Spring washer type, ø 30 mm [1.18“], three part, plug-in
502 = Bellows-type ø 25 mm [0.98“]

ⓑ *Bore diameter d1* (see technical data)

Note:
for the bore diameter d1 = 1/4” please enter Code A2

ⓒ *Bore diameter d2* (see technical data)

Example: d1 = 10 mm [0.39“] and d2 = 12 mm [0.47“]
Order no. = 8.0000.1X0X.**1012**

Technical data

Type			8.0000.1**1**02.XXXX	8.0000.1**2**02.XXXX	8.0000.1**3**01.XXXX	8.0000.1**4**01.XXXX	8.0000. 1**5**02.XXXX
Maximum speed		min^{-1}	10000	10000	12000	12000	10000
Maximum torque		Ncm	120	40	80	60	200
Maximum displacement	radial	mm	± 0.3	± 0.25	± 0.4	± 0.3	± 0.35
	axial	mm	± 0.5	± 0.45	± 0.4	± 0.4	± 0.54
	angular	-	± 4°	± 4°	± 3°	± 2.5°	± 4°
Torsion spring stiffness		Nm/rad	150	85	150	30	183
Radial spring stiffness		N/mm	10	20	6	40	17.8
Moment of inertia		gcm^2	9.5	2.1	19	35	20
Max. tightening torque		Ncm	150	70	80	80	120
Working temperature			-30°C ... +120°C [-22°F ... +248°F]	-30°C ... +120°C [-22°F ... +248°F]	-30°C ... +120°C [-22°F ... +248°F]	-10°C ... +80°C [+14°F ... +176°F]	-30°C ... +120°C [-22°F ... +248°F]
Weight approx.			16 g [0.56 oz]	6.5 g [0.23 oz]	16 g [0.56 oz]	30 g [1.06 oz]	24 g [0.85 oz]
Material	flange		Al, anodized	Al, anodized	Al, anodized	Al, anodized	Al, anodized
	bellow or spring washer/casing		stainless steel	stainless steel	stainless steel	PA 6.6 gf.	stainless steel
Diameter d/d1 from ... to		mm [inch]	3 ... 12 [0.12 ... 0.47]	3 ... 9 [0.12 ... 0.35]	3 ... 8 [0.12 ... 0.32]	4 ... 16 [0.16 ... 0.47]	3 ... 16 [0.12 ... 0.63]
Standard bore diameter	(d1 / d2)	mm [inch]	12 / 12 [0.47 ... 0.47] 12 / 10 [0.47 ... 0.39] 10 / 10 [0.39 ... 0.39] 10 / 08 [0.39 ... 0.32] 10 / 06 [0.39 ... 0.24] 08 / 08 [0.32 ... 0.32] 06 / 06 [0.24 ... 0.24]	08 / 06 [0.32 ... 0.24] 06 / 06 [0.24 ... 0.24] 06 / 04 [0.24 ... 0.16] 04 / 04 [0.16 ... 0.16]	06 / 06 [0.24 ... 0.24]	12 / 12 [0.47 ... 0.47] 12 / 10 [0.47 ... 0.39] 10 / 10 [0.39 ... 0.39] 10 / 06 [0.39 ... 0.24] 06 / 06 [0.24 ... 0.24] 1/4” / 10 1/4” / 06	15 / 12 [0.59 ... 0.47] 14 / 12 [0.55 ... 0.47] 14 / 10 [0.55 ... 0.39] 10 / 10 [0.39 ... 0.39] 06 / 06 [0.24 ... 0.24]

Description and applications

Manufacturing and installation tolerances as well as the effects of temperature cause alignment errors between shafts in drive engineering which can sometimes lead to extreme overload on the bearings.

This may result in increased wear of the bearings and may lead to premature failure of the encoder. By using couplings, these alignment errors can be compensated, thereby reducing the load on the bearings to a minimum. A distinction should be made between three different kinds of alignment error: radial, angular and axial displacement.

Whilst with torsion-free but flexible shaft couplings, axial shaft displacements produce only static forces in the coupling, radial and angular displacements produce alternating stresses, restoring forces and moments which may have an impact on adjoining components (shaft bearings).

Depending on the type of coupling, particular attention should be paid to radial shaft displacement which should be kept to a minimum.

Metal bellows-type couplings (.1102, .1202 und .1502)

Metal bellows-type couplings are recommended as an inexpensive type of coupling. They are also suitable for compensating larger angle displacements.

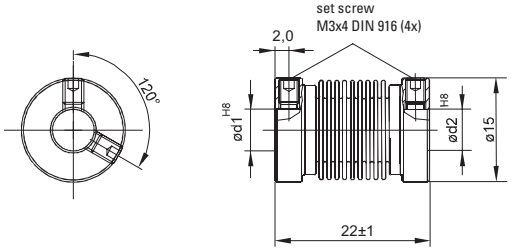
Spring washer-type couplings (.1301 und .1401)

Spring washer couplings are used primarily where high speeds and minimal axial errors occur. For applications requiring potential separation between the encoder and the drive, use the electrically isolating spring washer coupling.

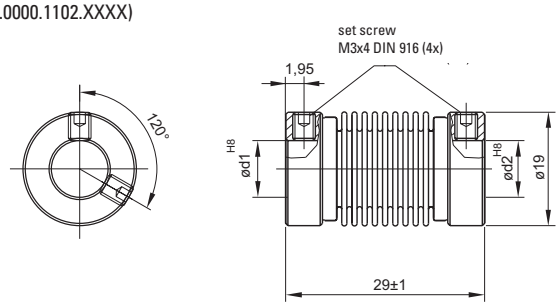
Dimensions

Dimensions in mm

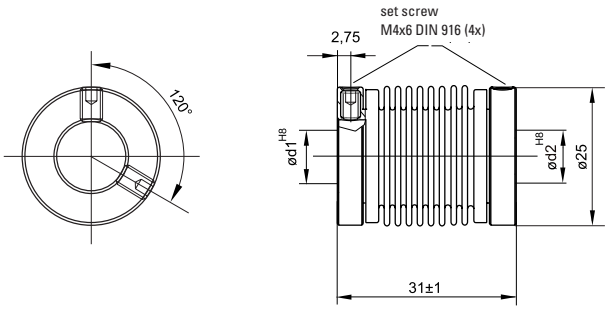
Bellows-type coupling ø 15 [0.59]
(8.0000.1202.XXXX)



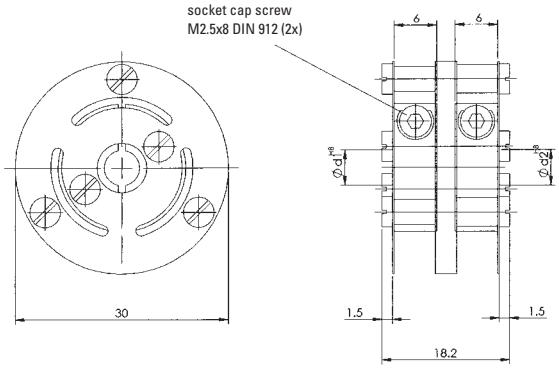
Bellows-type coupling ø 19 [0.75]
(8.0000.1102.XXXX)



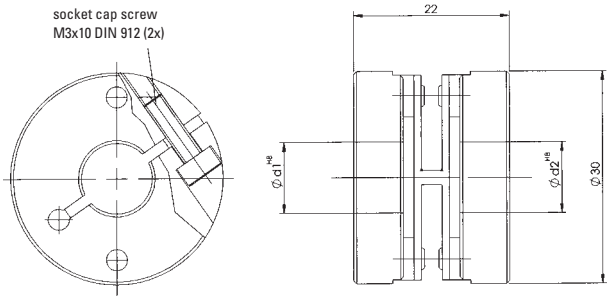
Bellows-type coupling ø 25 [0.98]
(8.0000.1502.XXXX)



Spring washer-type coupling, one-part
(8.0000.1301.XXXX)

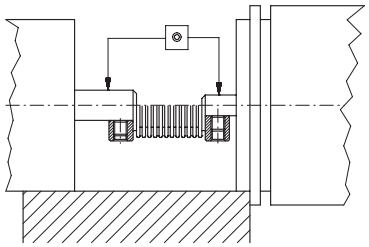


Spring washer-type coupling, three part, plug-in
(8.0000.1401.XXXX)



Installation instructions

1. Check shaft for displacement; see technical data for details.
2. Align and adjust coupling on shafts.
3. Tighten locking screws carefully. Avoid overtightening.
4. During installation protect the coupling from damage and from overbending.



Connection of motor and encoder | **Couplings** | **Bellows couplings (FS)**

Bellows couplings provide cost-effective connection of the motor and encoder. They are also able to correct any angular errors between the drive and encoder.

These bellows couplings (FS) are used for safe connection of applications and Sendix SIL encoders.

The safety-oriented bellows coupling has, in addition to the metallic bellows, internal claws that ensure the driving of the encoder in case of breakage of the bellows connection.

Order code Couplings

8.0000	.	1	X ⓐ	FS	.	XX ⓑ	XX ⓒ
Type							

ⓐ *Type of coupling*
5 = bellows coupling ø 25 mm [0.98“]

ⓑ *Bore diameter d1*
(see technical data)

ⓒ *Bore diameter d2*
(see technical data)

Example: d1 = 10 mm and d2 = 12 mm
order no. = 8.0000.15FS.**1012**

Accessory		Order no.
Screw retention	Loctite 243, 5 ml	**8.0000.4G05.0000**

Technical data

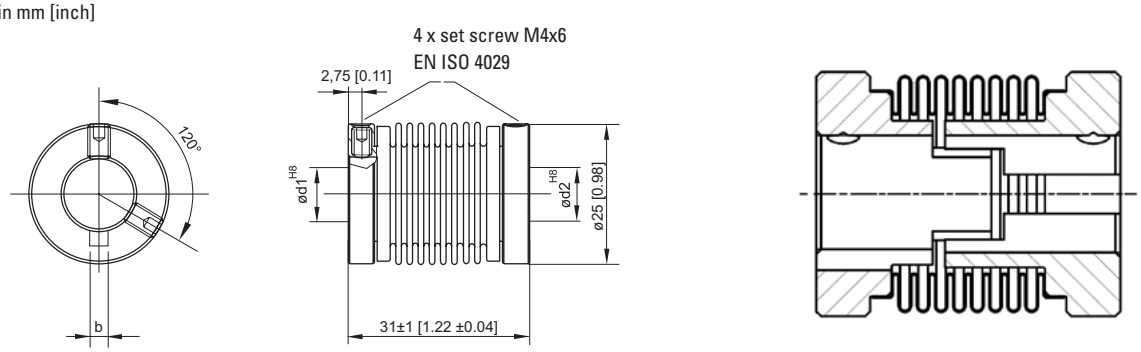
Mechanical characteristics

Max. speed		10000 min^{-1}
Max. torque		200 Ncm
Max. shaft offset	radial	± 0.3 mm
	axial	± 0.45 mm
	angular	± 3°
Torsion spring stiffness		183 Nm/rad
Radial spring stiffness		17.8 N/mm
Moment of inertia		9.1 gcm^2
Headless set screw tightening torque		
	min.	80 Ncm
	max.	100 Ncm

Working temperature range		-30°C ... +120°C [-22 ... +248°F]
Weight approx.		54 g
Material	flange	stainless steel 1.4104
	bellows	stainless steel 1.4571
Standard bore diameter	(d1 / d2)	10 / 10 mm [0.39 / 0.39“]
		10 / 12 mm [0.39 / 0.47“]
		12 / 12 mm [0.47 / 0.47“]
Insertion depth	min.	6 mm [0.24“]
	max.	11 mm [0.43“]

Dimensions

Dimensions in mm [inch]



Nut DIN 6885

nut width b	d1 / d2
3 [0.12]	10 [0.39]
4 [0.16]	12 [0.47]

Connection of motor and encoder | Flexible shaft coupling | Double loop coupling

The safe, uncomplicated and economical solution, if drive shafts with angular, radial and/or axial displacement are to be friction-locked together.

Order no. size 1

Bore diameter both sides 6 mm [0.24“]	**8.0000.1J01.0606**

Order no. size 2

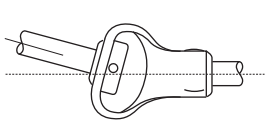
Bore diameter both sides 10 mm [0.39“]	**8.0000.1K01.1010**
Bore diameter 11 mm [0.43“] and 12 mm [0.47“] with keyway	**8.0000.1L01.1112**

Technical data

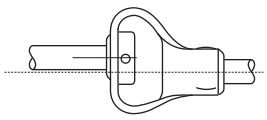
		Size 1	Size 2
Max. speed		3000 min^{-1}	3000 min^{-1}
Max. torque		0.5 Nm	2.0 Nm
Max. offset of shafts	radial	± 2 mm	± 3 mm
	axial	± 2 mm	± 4 mm
	angular	± 10°	± 12°
Torsion spring stiffness		13 Nm/rad	28 Nm/rad
Radial spring stiffness		13 N/mm	7 N/mm
Moment of inertia		41 gcm²	106 gcm²
Max. clamping torque		100 Ncm	100 Ncm
Weight, approx.		33 g [1.16 oz]	85 g [3.35 oz]
Temperature range		-30°C ... + 80°C [-22°F ... +176°F]	
Material	flange	steel galvanized	
	connecting element	Polyurethane	

Functional principle

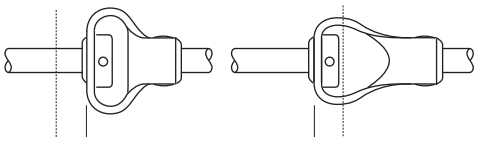
Compensation of an angular misalignment



Compensation of a radial misalignment



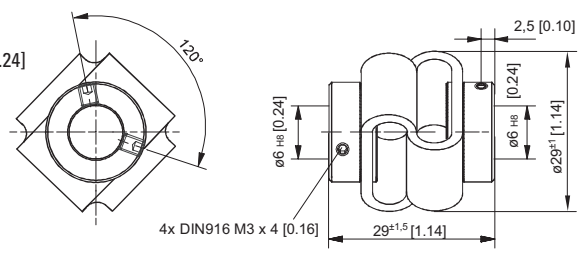
Compensation of a axial misalignment



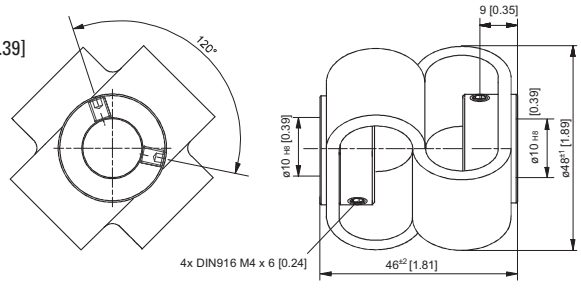
Dimensions

Dimensions in mm

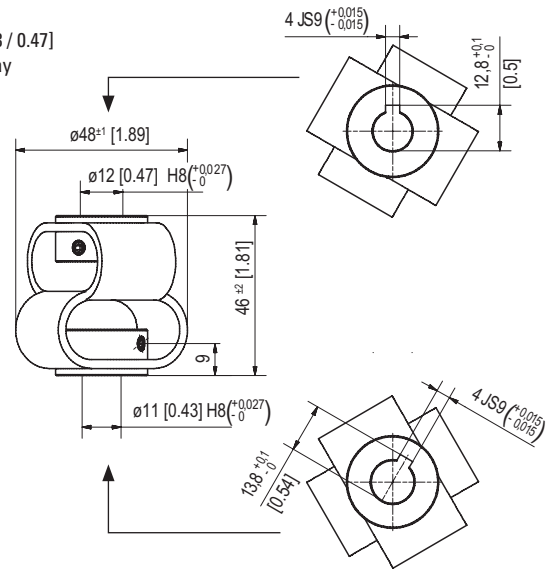
Size 1
6 / 6
[0.24 / 0.24]



Size 2
10 / 10
[0.39 / 0.39]



Size 2
11 / 12 [0.43 / 0.47]
with keyway

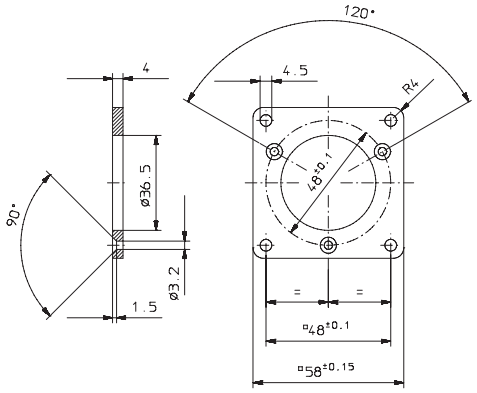
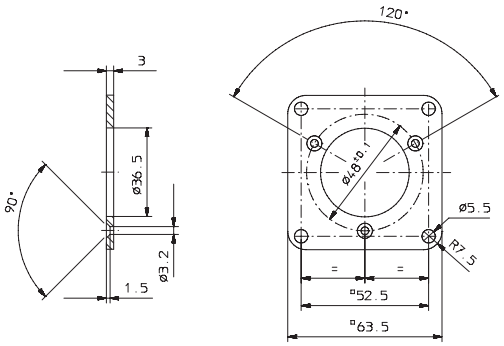
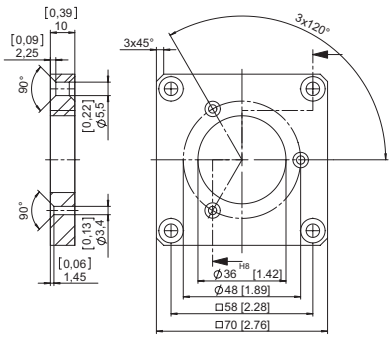
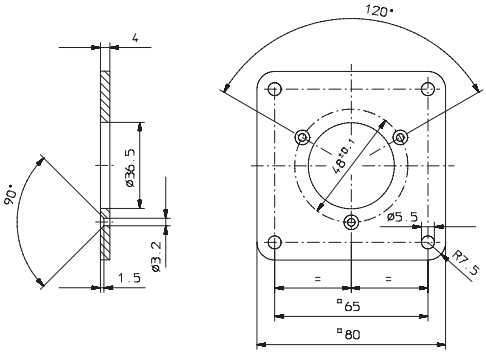


Fixing components for shaft encoders — Overview

Figure	Description	Order no.	Details s.page	Incremental encoders: 5000, KIS50, 5814, 5006, 5803, 5804, 5805	Incremental encoders: 7000, 7100	Abs. singleturn encoders: 5853, 5858, 5852	Abs. singleturn encoders: 7053, 7058, 7153, 7158	Abs. multiturn encoders: 5863, 5868, F5863, F5868	Abs. multiturn encoders: M5861, M5863, M5868	Abs. multiturn encoders: 7063, 7068, 7163, 7168
	**Flange, square** Suitable for shaft encoders with clamping flange									
	☐ 58.0 [2.28“], 4 [0.16“] thick	**8.0010.2100.0000**	**675**	X		X		X	X	
	☐ 63.5 [2.5“], 3 [0.12“] thick	**8.0010.2120.0000**	**675**	X		X		X	X	
	☐ 70.0 [2.76“], 10 [0.39“] thick	**8.0010.2600.0000**	**675**	X		X		X	X	
	☐ 80.0 [3.15“], 4 [0.16“] thick	**8.0010.2800.0000**	**675**	X		X		X	X	
	**Flange ø 65 mm [2.56“]** With this adapter flange, Küber encoders with size 58 mm [2.28“] can replace encoders with diameter 65 mm [2.56“] and pitch circle diameter 48 mm [1.89“]	**8.0010.2230.0000**	**676**	X		X		X	X	
	**Flange, ø 115 mm [4.53“]** **Euroflange**	**8.0010.2160.0000** **8.0010.2170.0000**	**676**	X	X	X	X	X	X	X
	**Flange, ø 58 mm [2.28“]** Converts encoders with a clamping flange into synchro flange.	**8.0010.2180.0000**	**676**	X		X		X	X	
	**Flange, ø 90 mm [3.54“]** Mechanically compatible with former encoder Type 9000	**8.0010.2270.0000**	**677**	X		X		X	X	
	**Angular flange** 80 mm x 80 mm x 40 mm [3.15“ x 3.15“ x 1.57“]	**8.0010.2300.0000**	**677**	X		X			X	
	**Assembly bell** Electrical and thermal isolation by means of glass fiber reinforced plastic and isolating spring washer coupling – supplied as complete set	**8.0000.4500.XXYY**	**678**	X		X		X	X	
	**Fastening eccentrics** For shaft encoders with synchronous flange. Use at least three fastening eccentrics to mount the encoder.	**8.0010.4200.0000** **8.0010.4100.0000**	**679**	see table page 679						
	**Robust bearing unit** Matching shaft encoders with clamping flange and shaft 10 mm [0.39“]	**8.0010.8200.000C**	**680**	X		X		X	X	
	**Bearing box**	**8.0010.8200.0004**	**681**	X		X		X	X	

Fixing components for shaft encoders

Details

Dimensions / Details	Dimensions in mm [inch]	Order no.
Flange, square		
		**8.0010.2100.0000**
		**8.0010.2120.0000**
		**8.0010.2600.0000**
		**8.0010.2800.0000**

Scope of delivery:
- flange (aluminum)
- 3 screws for fixing to the encoder

Connection to application:
- 4 screws (not supplied)

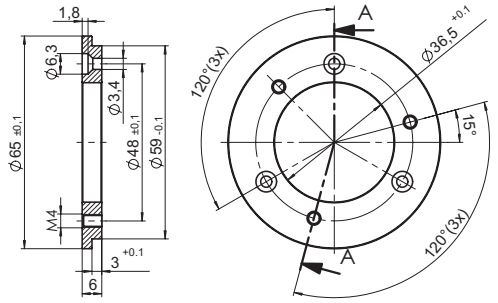
Fixing components for shaft encoders

Details

Dimensions / Details	Dimensions in mm [inch]	Order no.

Flange, ø 65 [2.56]

With this adapter flange, Kübler encoders with size 58 [2.28] can replace encoders with diameter 65 [2.56] and pitch circle diameter 48 [1.89].



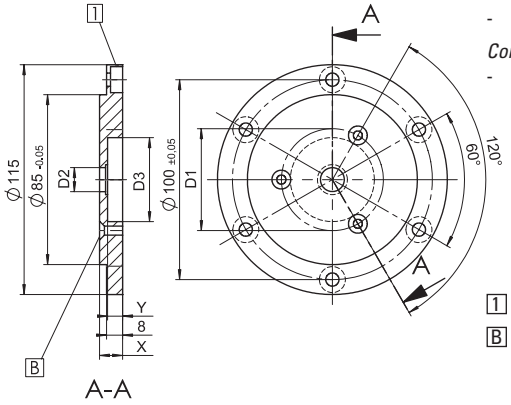
Scope of delivery:
- flange (aluminum)
- 3 screws for fixing to the encoder

Connection to application:
- 3 screws (not supplied)

8.0010.2230.0000

Flange, ø 115 [4.53], Euroflange (Euro REO 444)

encoder type	*D1*	*D2*	*D3*	*X*	*Y*	B	
580X/5000	48 [1.89]	36 [1.42]	58 [2.28]	11 [0.43]	1 [0.039]	DIN 74-BM3	**8.0010.2160.0000**
70XX	51 [2.01]	12 [0.47]	42 [1.65]	11.5 [0.45]	7.5 [0.30]	DIN 74-BM4	**8.0010.2170.0000**



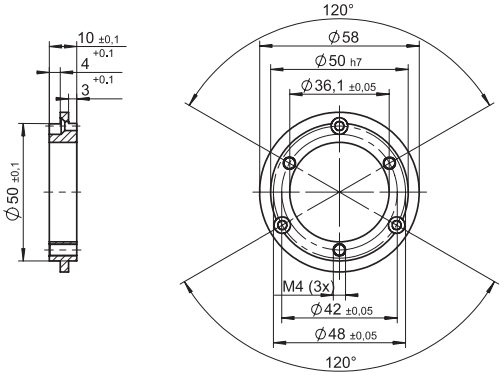
Scope of delivery:
- flange (aluminum)
- 3 screws for encoder mounting

Connection to application:
- 6 screws (not supplied)

1 Countersunk DIN 74-Hm6
B See table

Flange, ø 58 [2.28]

Converts encoders with a clamping flange into synchro flange.



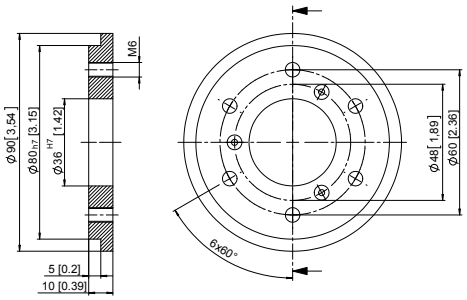
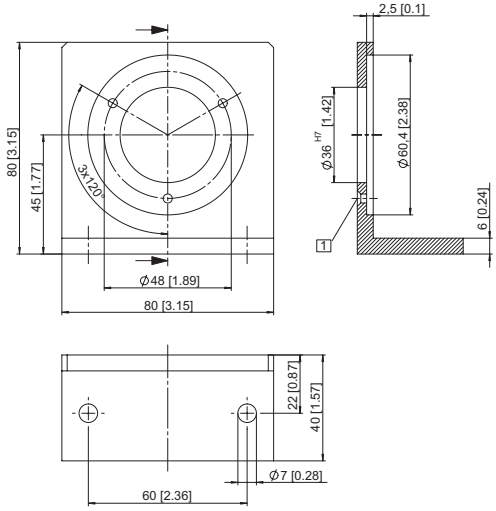
Scope of delivery:
- flange (aluminum)
- 3 screws for encoder mounting

Connection to application:
- 3 screws (not supplied)

8.0010.2180.0000

Fixing components for shaft encoders

Details

Dimensions / Details	Dimensions in mm [inch]	Order no.
Flange, ø 90 [3.54] Mechanically compatible with former encoder type 9000	 	*Scope of delivery*: - flange - 3 screws for encoder mounting *Connection to application:* - 6 screws (not supplied)	**8.0010.2270.0000**
Angular flange	 	*Scope of delivery*: - angular flange (aluminum) - 3 screws for encoder mounting *Connection to application:* - 2 screws (not supplied) 1 Countersunk DIN 74-Hm6	**8.0010.2300.0000**

Fixing components for shaft encoders

Details

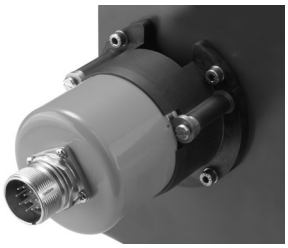
Dimensions / Details

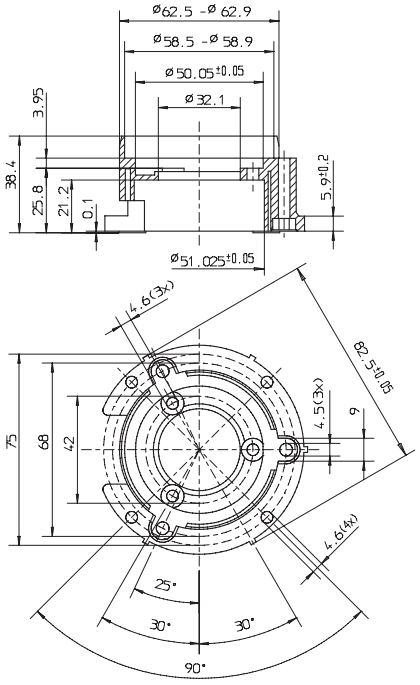
Dimensions in mm [inch]

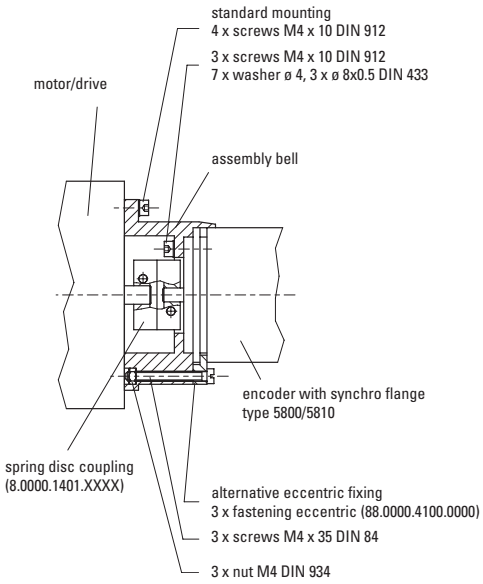
Order no.

Assembly bell

- Easy and quick encoder mounting
- Electrical and thermal isolation by means of glass fiber reinforced plastic and isolating spring washer coupling
- Supplied as complete set







Scope of delivery:

- Assembly bell
- Spring washer type coupling (8.0000.1401.XXXX)
- 4 hexagon socket head cap screws DIN 912 M4 x 12 [0.47]
- 3 hexagon socket head cap screws DIN 912 M4 x 10 [0.39]
- 7 washers DIN 433 ø 4 [0.16]
- 3 fastening eccentrics (8.0000.4B00.0000)
- 3 hexagon head screws DIN 84 M 4 x 35 [0.16 x 1.38]
- 3 hexagon nuts DIN 934 - M4

8.0000.4500.XXYY

XX = Coupling diameter d1 in mm
YY = Coupling diameter d2 in mm

Fixing components for shaft encoders

Details

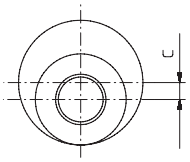
Dimensions / Details

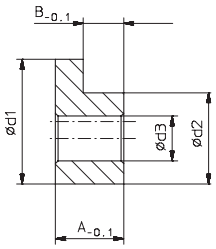
Dimensions in mm [inch]

Order no.

Fastening eccentrics
for encoders with synchro flange

- Suitable for Kübler encoders with synchro flange
- Material ACu Zn 39 Pb 3
- Surface finish: galvanized Ni





encoder type	*D1*	*D2*	*D3*	*A*	*B*	*C*	
3610 3651 M3658 F3653 / F3658 F3663 / F3668	6.8 [0.27]	5 [0.20]	2.8 [0.11]	3.5 [0.14]	2.25 [0.09]	0.9 [0.035]	**8.0010.4200.0000**
5000 5803 / 5804 / 5805 5853 / 5858 5863 / 5868 F5863 / F5868 5852 7053 / 7058 7063 / 7068	9.6 [0.38]	6.5 [0.26]	3.2 [0.13]	5,6 [0.22]	2.9 [0.11]	1.55 [0.06]	**8.0010.4100.0000**

Scope of delivery:
- 3 eccentrics
- 3 screws

(Use at least three fastening eccentrics to mount the encoder)

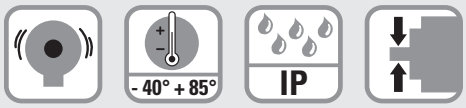
Robust bearing unit

Suitable for Sendix 50xx and 58xx

Quick and simple – more protection

Separating the bearing load and the sensor technology affords the encoder greater protection in harsh environments.

Retrofitting to all encoders with a 58 mm clamping flange is very easy and quick.



Shock / vibration resistant | Temperature | High IP value | High shaft load capacity

Order no. 8.0010.8200.000C

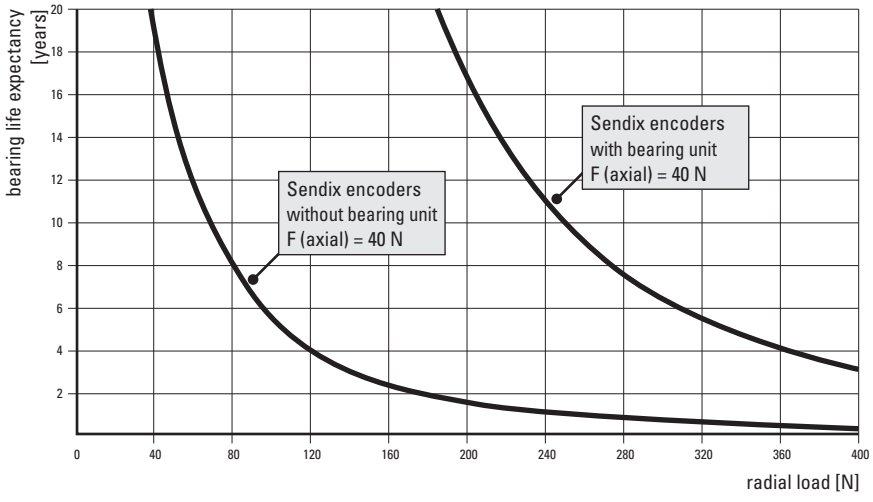
Robust bearing unit

matching shaft encoders with clamping flange and shaft 10 mm [0.39"]

Technical data		
Maximum speed		6000 min^{-1}
Weight		approx. 560 g [19.75 oz]
Protection		IP67
Material	housing	aluminum optional: seawater resistant
	shaft	stainless steel

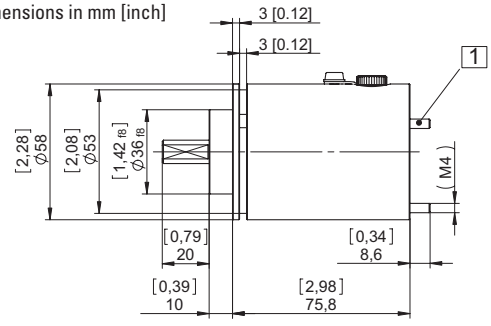
Bearing life expectancy L10

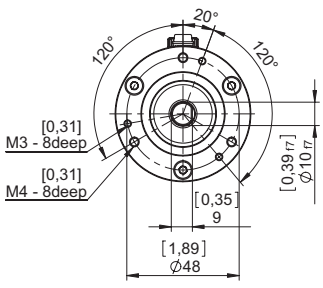
at 3000 revolutions/min with continuous operation

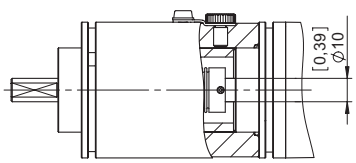


Dimensions

Dimensions in mm [inch]







1 3 x socket cap screw M4x25 (SW3)
1 x washer
included as mounting set

Bearing box

In applications where the encoder is driven by use of gears, chains, belts etc. and the permitted axial and radial shaft loads are exceeded, we recommend the use of the special designed bearing box which has stronger bearings.

This can be combined with all encoders with a 58 mm clamping flange and shaft ø 10 x 20 mm.

Order no. **8.0010.8200.0004**

Scope of delivery

- Bearing box with lock cover and sealing
- Coupling for shaft Ø 10 mm
- Flange adapter 8.0010.2100.0000
- 3 x countersunk head screws DIN 63 M 3 x 8
- 4 x slotted cheese head screws DIN 84 M 4 x 8

Technical data		
Shaft load	axial radial	150 N 250 N
Lifetime of bearings		50000 h
Protection acc. to EN 60529		IP65
Max. speed		4000 min^{-1}

Dimensions

Dimensions in mm